PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark Office, PCT
2011 South Clark Place Room CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 23 February 2001 (23.02.01)	
International application No. PCT/SE00/01378	**Applicant's or agent's file reference**
International filing date (day/month/year) 29 June 2000 (29.06.00)	**Priority date** (day/month/year) 29 June 1999 (29.06.99)
Applicant WAGER, Mats	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

18 January 2001 (18.01.01)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

F. Baechler

Telephone No.: (41-22) 338.83.38

SE0001378

PATENT COOPERATION TREATY

PCT

REC'D 08 MAY 2001

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference –	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/SE00/01378	International filing date *(day/month/year)* 29.06.2000	Priority date *(day/month/year)* 29.06.1999
International Patent Classification (IPC) or national classification and IPC7 A47L 9/02		
Applicant WAGER, Mats		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
18.01.2001	25.04.2001
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer Jan-Axel Ylivainio / MRo Telephone No. 08-782 25 00

Telex 17978 PATOREG-S

Form PCT/IPEA/409 (cover sheet) (January 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/SE00/01378

I. Basis of the report

1. With regard to the **elements** of the international application:*

☒ the international application as originally filed

☐ the description:
pages _____ , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

☐ the claims:
pages _____ , as originally filed
pages _____ , as amended (together with any statement) under article 19
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

☐ the drawings:
pages _____ , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

☐ the sequence listing part of the description:
pages _____ , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language english which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☒ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheet/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/SE00/01378

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-7	YES
	Claims		NO
Inventive step (IS)	Claims	1-7	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-7	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Cited documents:

A: SE 509890 C2
B: SE 387531 B

The claimed invention relates to a vacuum cleaner nozzle for the vacuum cleaning of hard and/or soft surfaces. The end of the nozzle furthest from the vacuum cleaner has the form of a flat nozzle or dust brush nozzle and the end nearest to the vacuum cleaner is formed for connection to the hose handle of the vacuum cleaner.

The object of the invention is to provide an improved nozzle of the above mentioned kind so that the hose handle can be inserted into one end of the dust brush nozzle and the wand of a floor nozzle can be fitted to its other end.

The object is achieved in that the end of the nozzle furthest from the vacuum cleaner is equipped with an inner tube surrounded by a clear space for the fitting of the wand of a floor nozzle onto the inner tube.

The most relevant document, A, discloses a vacuum cleaner nozzle according to the preamble of claim 1.

The invention claimed in claim 1 differs from the known nozzle in respect of the specific feature mentioned above as defined by the characterising part of the independent claim 1.

.../...

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

The subject matter of claim 1, therefore, is novel and has industrial applicability.

With regard to the cited documents A and B, the subject matter of claim 1 is not obvious to a person skilled in the art and, therefore, also involves an inventive step.

Dependent claims 2-7 are acceptable in conjunction with claim 1.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 00/01378

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A47L 9/02
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SE 509890 C2 (M. WAGER), 15 March 1999 (15.03.99), figures 1-6 --	1-7
A	SE 387531 B (KOOPERATIVA FÖRBUNDET (KF), EKONOMISK FÖRENING), 13 Sept 1976 (13.09.76), figures 1-7 --	1-7

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" erlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 Sept 2000	13 -10- 2000
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Jan-Axel Ylivainio / MRo Telephone No. +46 8 782 25 00

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

28/06/00

International application No.
PCT/SE 00/01378

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
SE 509890 C2	15/03/99	SE 9502663 A	21/01/97
SE 387531 B	13/09/76	SE 7500452 A	19/07/76

RECORD COPY

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No. PCT/ SE 00 / 0 1 3 7 8

International Filing Date 29 -06- 2000

The Swedish Patent Office
PCT International Application

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum)

Box No. I TITLE OF INVENTION

Vacuum cleaner tool for suction of hard and/or soft surfaces

Box No. II APPLICANT

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

Wager Mats
Skansv 71
S-19133 Sollentuna
Sweden

☒ This person is also inventor.

Telephone No. -46-(0)8-357924

Facsimile No.

Teleprinter No.

State *(that is, country)* of nationality: Sweden

State *(that is, country)* of residence: Sweden

This person is applicant for the purposes of: ☒ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:

☐ applicant only

☐ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: ☐ agent ☐ common representative

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Telephone No.

Facsimile No.

Teleprinter No.

☐ **Address for correspondence:** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) *(mark the applicable check-boxes; at least one must be marked)*:

Regional Patent

☐ **AP** **ARIPO Patent:** **GH** Ghana, **GM** Gambia, **KE** Kenya, **LS** Lesotho, **MW** Malawi, **SD** Sudan, **SL** Sierra Leone, **SZ** Swaziland, **TZ** United Republic of Tanzania, **UG** Uganda, **ZW** Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT

☐ **EA** **Eurasian Patent:** **AM** Armenia, **AZ** Azerbaijan, **BY** Belarus, **KG** Kyrgyzstan, **KZ** Kazakhstan, **MD** Republic of Moldova, **RU** Russian Federation, **TJ** Tajikistan, **TM** Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT

☒ **EP** **European Patent:** **AT** Austria, **BE** Belgium, **CH and LI** Switzerland and Liechtenstein, **CY** Cyprus, **DE** Germany, **DK** Denmark, **ES** Spain, **FI** Finland, **FR** France, **GB** United Kingdom, **GR** Greece, **IE** Ireland, **IT** Italy, **LU** Luxembourg, **MC** Monaco, **NL** Netherlands, **PT** Portugal, **SE** Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT

☐ **OA** **OAPI Patent:** **BF** Burkina Faso, **BJ** Benin, **CF** Central African Republic, **CG** Congo, **CI** Côte d'Ivoire, **CM** Cameroon, **GA** Gabon, **GN** Guinea, **GW** Guinea-Bissau, **ML** Mali, **MR** Mauritania, **NE** Niger, **SN** Senegal, **TD** Chad, **TG** Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT *(if other kind of protection or treatment desired, specify on dotted line)* .....

National Patent *(if other kind of protection or treatment desired, specify on dotted line)*:

☒ **AE** United Arab Emirates
☒ **AL** Albania
☒ **AM** Armenia
☒ **AT** Austria
☒ **AU** Australia
☒ **AZ** Azerbaijan
☒ **BA** Bosnia and Herzegovina
☒ **BB** Barbados
☒ **BG** Bulgaria
☒ **BR** Brazil
☒ **BY** Belarus
☒ **CA** Canada
☒ **CH and LI** Switzerland and Liechtenstein
☒ **CN** China
☒ **CR** Costa Rica
☒ **CU** Cuba
☒ **CZ** Czech Republic
☒ **DE** Germany
☒ **DK** Denmark
☒ **DM** Dominica
☒ **EE** Estonia
☒ **ES** Spain
☒ **FI** Finland
☒ **GB** United Kingdom
☒ **GD** Grenada
☒ **GE** Georgia
☒ **GH** Ghana
☒ **GM** Gambia
☒ **HR** Croatia
☒ **HU** Hungary
☒ **ID** Indonesia
☒ **IL** Israel
☒ **IN** India
☒ **IS** Iceland
☒ **JP** Japan
☒ **KE** Kenya
☒ **KG** Kyrgyzstan
☒ **KP** Democratic People's Republic of Korea
☒ **KR** Republic of Korea
☒ **KZ** Kazakhstan
☒ **LC** Saint Lucia
☒ **LK** Sri Lanka
☒ **LR** Liberia
☒ **LS** Lesotho
☒ **LT** Lithuania
☒ **LU** Luxembourg
☒ **LV** Latvia
☒ **MA** Morocco
☒ **MD** Republic of Moldova
☒ **MG** Madagascar
☒ **MK** The former Yugoslav Republic of Macedonia
☒ **MN** Mongolia
☒ **MW** Malawi
☒ **MX** Mexico
☒ **NO** Norway
☒ **NZ** New Zealand
☒ **PL** Poland
☒ **PT** Portugal
☒ **RO** Romania
☒ **RU** Russian Federation
☒ **SD** Sudan
☒ **SE** Sweden
☒ **SG** Singapore
☒ **SI** Slovenia
☒ **SK** Slovakia
☒ **SL** Sierra Leone
☒ **TJ** Tajikistan
☒ **TM** Turkmenistan
☒ **TR** Turkey
☒ **TT** Trinidad and Tobago
☒ **TZ** United Republic of Tanzania
☒ **UA** Ukraine
☒ **UG** Uganda
☒ **US** United States of America
☒ **UZ** Uzbekistan
☒ **VN** Viet Nam
☒ **YU** Yugoslavia
☒ **ZA** South Africa
☒ **ZW** Zimbabwe

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

☐ .....
☐ .....

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. *(Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)*

Sheet No. 3

PCT/SE 00 / 01378

29-06-2000

Box No. VI PRIORITY CLAIM ☐ Further priority claims are indicated in the Supplemental Box.

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is: national application: country	regional application:* regional Office	international application: receiving Office
item (1) 29-06-99	9902447-3	Sweden		
item (2)				
item (3)				

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) *(only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office)* identified above as item(s): _____

** Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.*

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) *(if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used)* : ISA/ SE

Request to use results of earlier search; reference to that search *(if an earlier search has been carried out by or requested from the International Searching Authority):*

Date (day/month/year)	Number	Country (or regional Office)
29/06/99	SE99/00908	SE

RO/SE

Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following **number of sheets**:

request	:	3
description (excluding sequence listing part)	:	3
claims	:	2
abstract	:	1
drawings	:	4
sequence listing part of description	:	0
Total number of sheets	:	13

This international application is **accompanied** by the item(s) marked below:

1. ☐ fee calculation sheet
2. ☐ separate signed power of attorney
3. ☐ copy of general power of attorney; reference number, if any:
4. ☐ statement explaining lack of signature
5. ☒ priority document(s) identified in Box No. VI as item(s):
6. ☐ translation of international application into (language):
7. ☐ separate indications concerning deposited microorganism or other biological material
8. ☐ nucleotide and/or amino acid sequence listing in computer readable form
9. ☐ other *(specify)*:

Figure of the drawings which should accompany the abstract: 6a

Language of filing of the international application: Swedish

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

Ulla Jonn

Mats Wagerö

For receiving Office use only

1. Date of actual receipt of the purported international application:	29-06-2000	2. Drawings: ☒ received: ☐ not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority (if two or more are competent): ISA/ SE	6. ☐ Transmittal of search copy delayed until search fee is paid.	

For International Bureau use only

Date of receipt of the record copy by the International Bureau: 02 AUGUST 2000 (02.08.00)

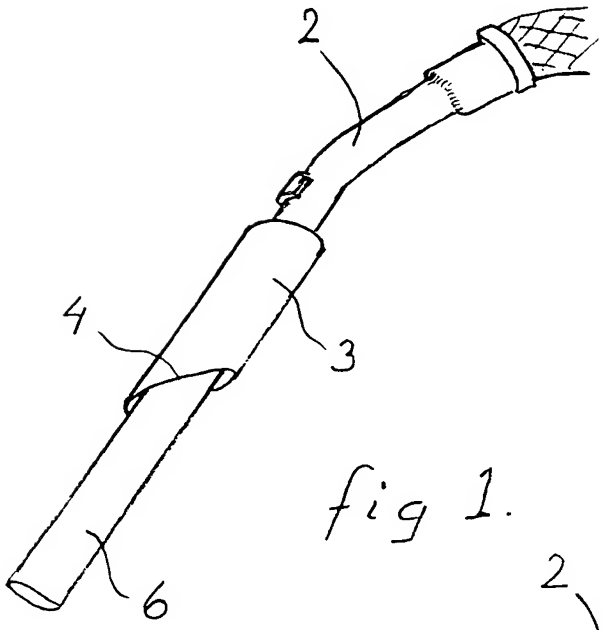

fig 1.

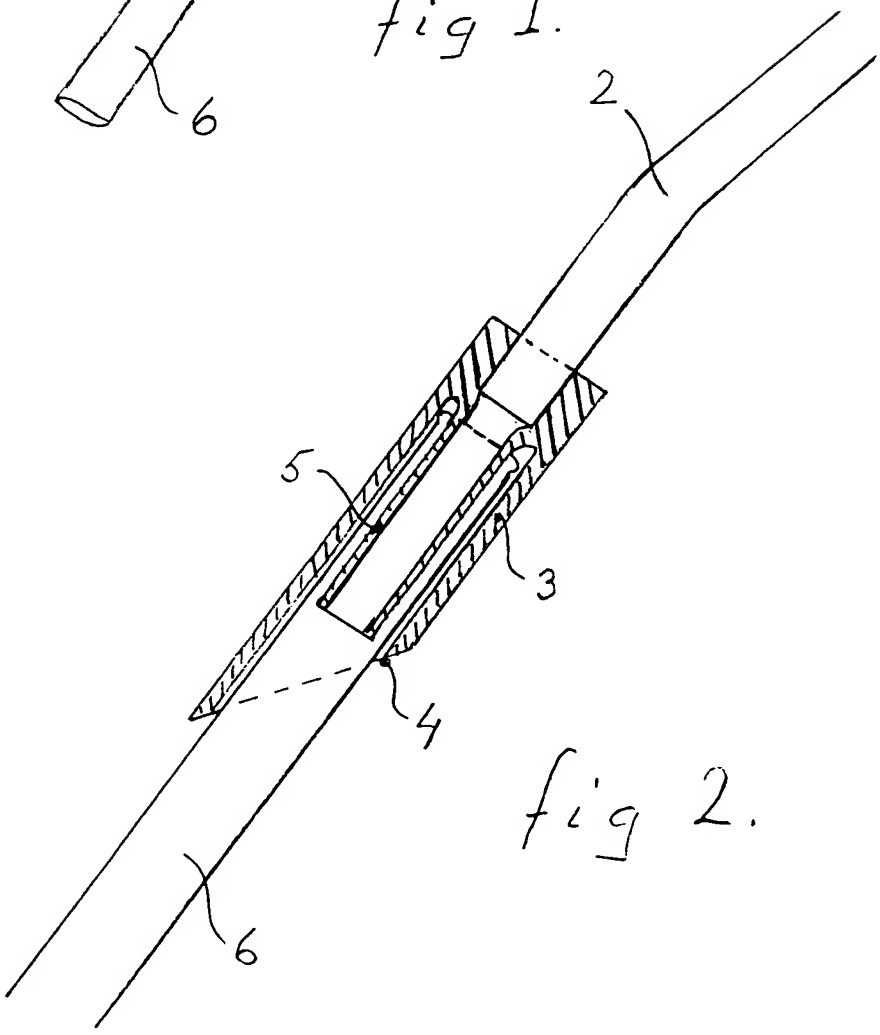

fig 2.

PCT/SE 0 0 / 0 1 3 7 8
01 -09- 2000

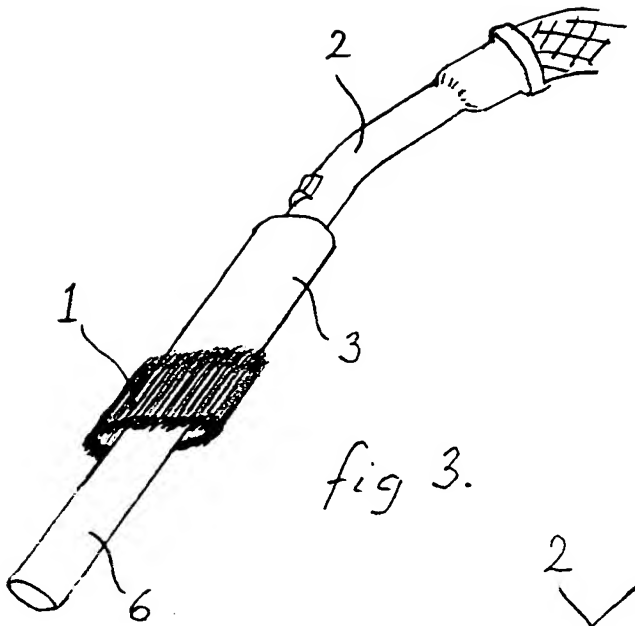

fig 3.

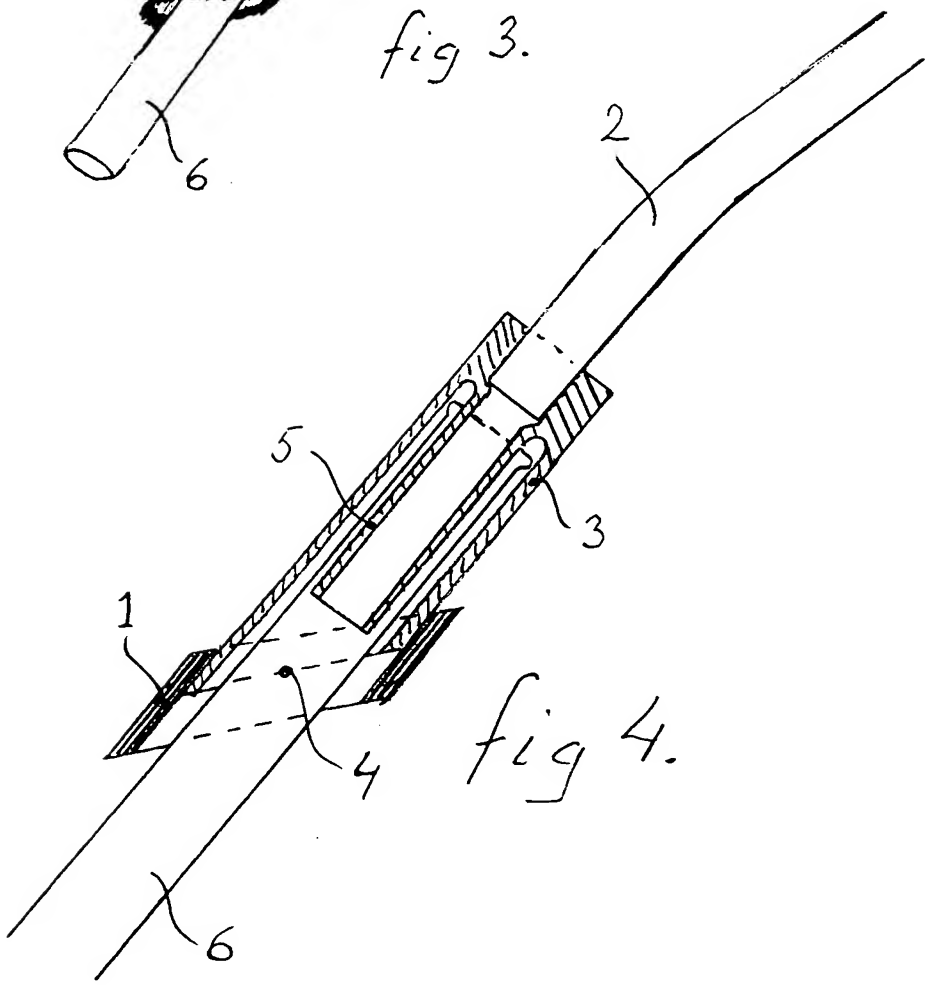

fig 4.

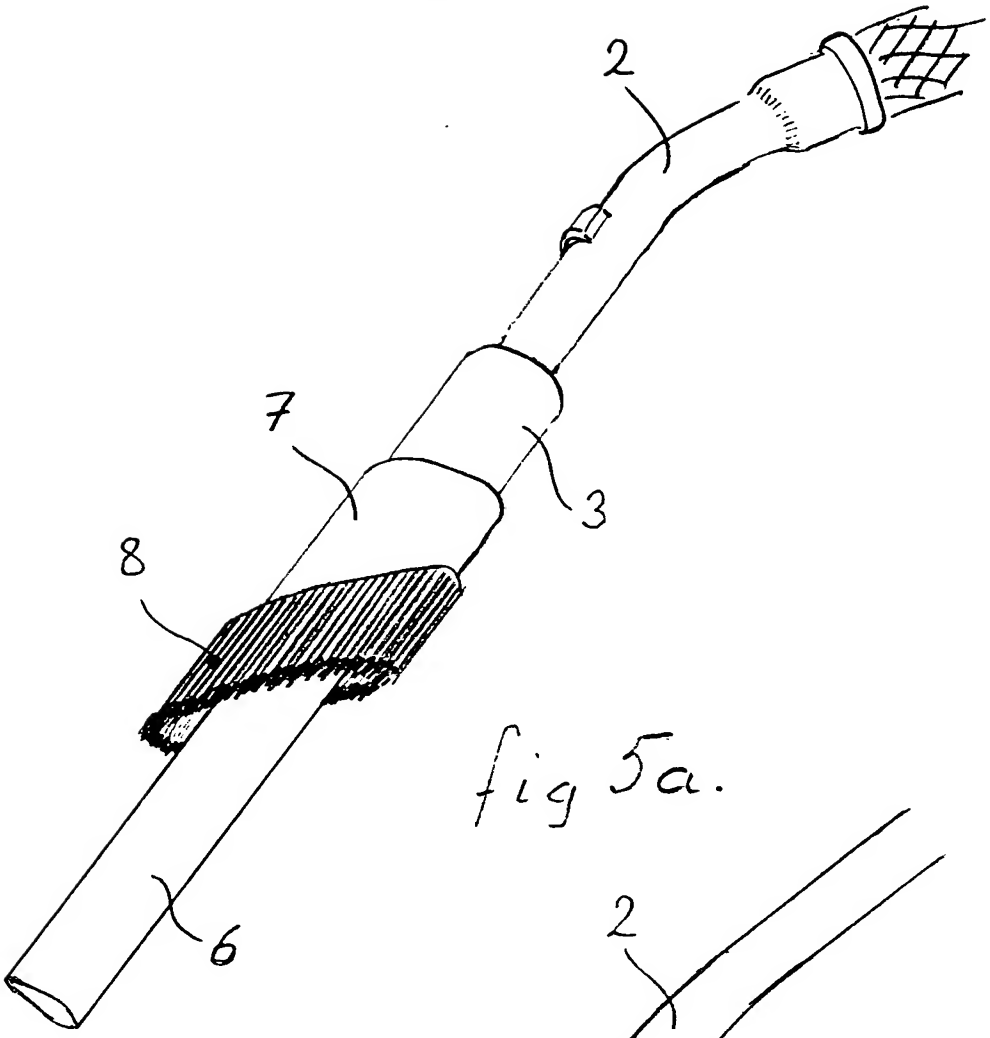

fig 5a.

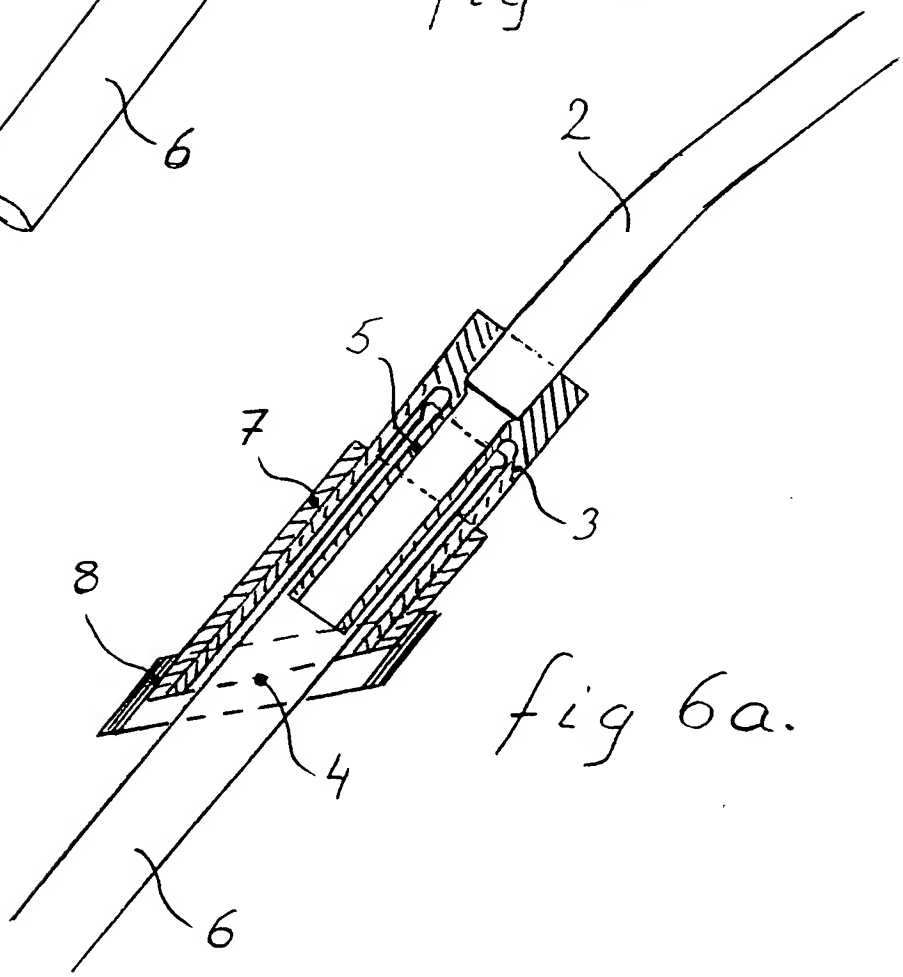

fig 6a.

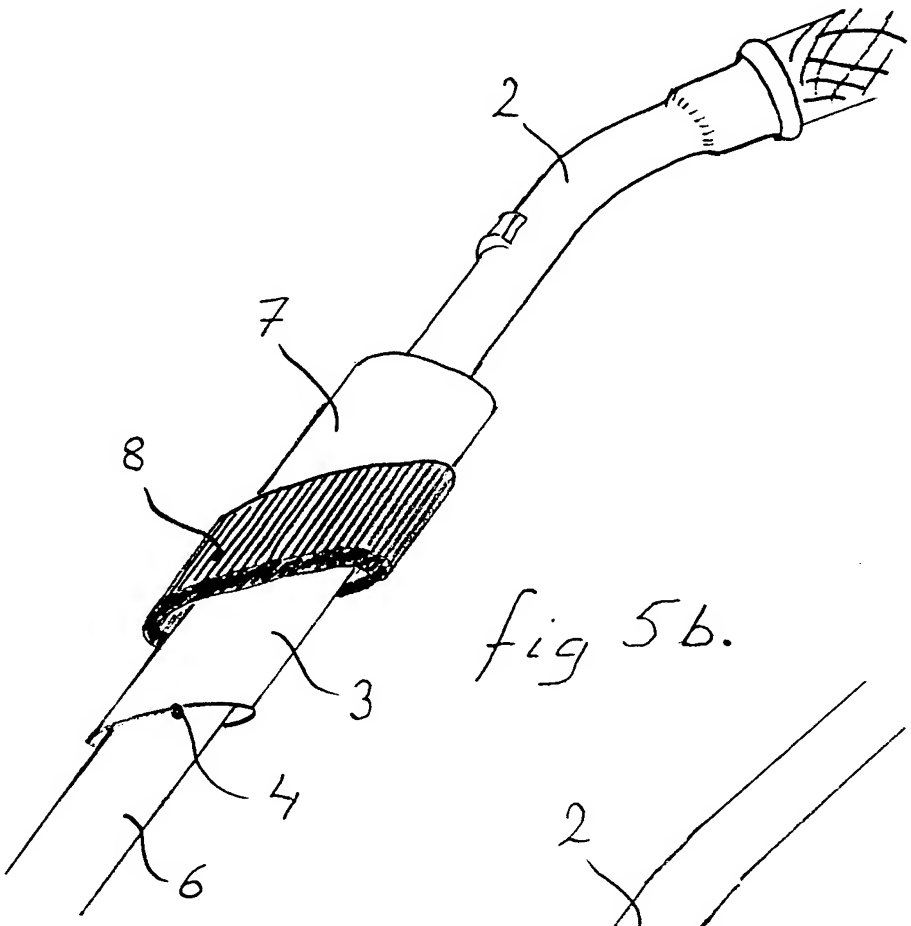

fig 5b.

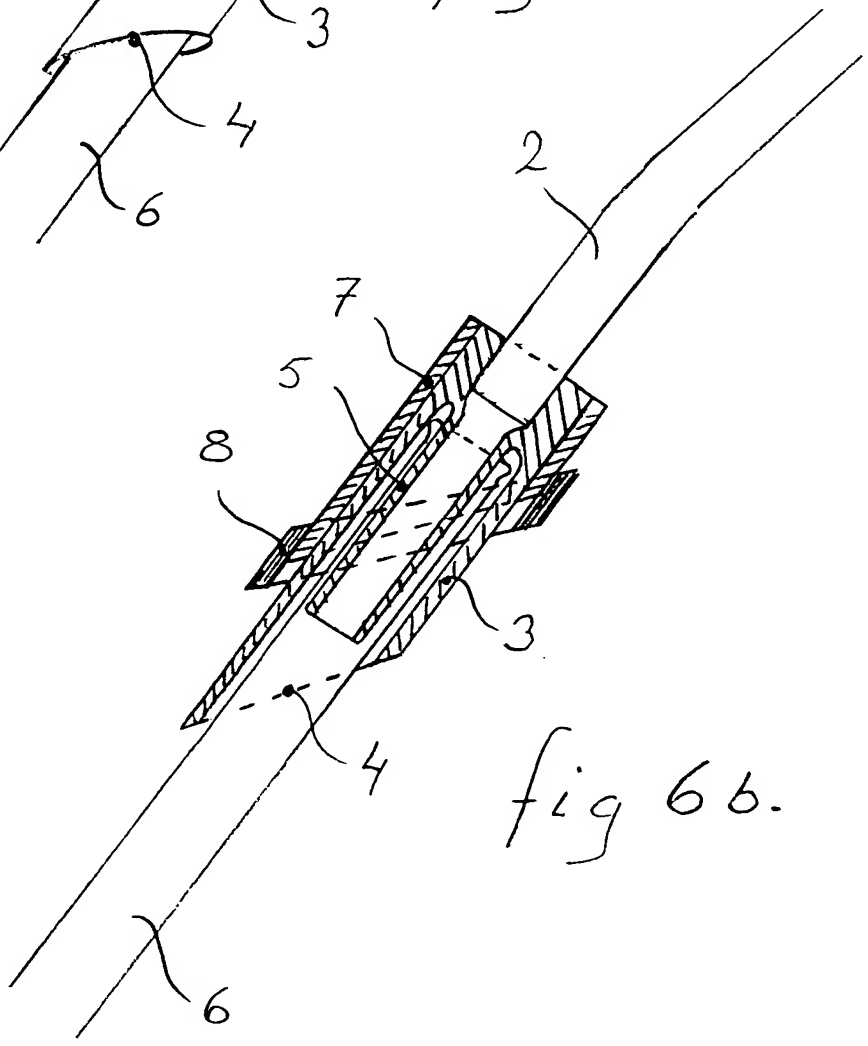

fig 6b.

Föreliggande uppfinning avser ett dammsugarmunstycke för sugning av hårda och/eller mjuka ytor vars ena ände utformats för anslutning till dammsugarens rörskaft och andra ände utformats med ett inre rör så att ett fritt utrymme uppstår runtom det inre röret där golvmunstyckets förlängningsrör kan påföras det inre röret.

I svenskt patent 509 890 visas ett munstycke som kan sitta kvar på dammsugarens rörskaft även när golvmunstyckets förlängningsrör är kopplade till dammsugaren. Växling mellan användning av dammunstycke och golvmunstycke underlättas därmed.

En nackdel med ovannämnda lösning är att dammunstycket eller dess montage på rörskaftet blir beroende av rörskaftets längd för att rörskaftets mynning skall hamna i rätt läge i förhållande till munstyckskroppens snett avskurna ände. Då rörskaftets längd kan variera från fabrikat till fabrikat utgör detta ett problem.

Syftet med föreliggande uppfinning är att eliminera ovanstående nackdel genom att integrera ett rör i dammunstycket så att rörskaftet kan införas i dammunstyckets ena ände och förlängningsrören påföras i dess andra ände. Härmed skapas ett generellt dammunstycke eller planmunstycke med bekväm anliggningsvinkel (Patentkrav 6) som ej behöver flyttas från sitt aktiva läge när golvmunstycket med sina förlängningsrör användes (Patentkrav 1). Skiftet mellan sugning av golv och användning av damm/planmunstycke är lätt att utföra utan att golvmunstycket med sina förlängningsrör behöver ställas åt sidan för att frigöra ena handen. Uppfinningen möjliggör också att damm och planmunstycket kombineras till ett kombinationsmunstycke med bibehållen lätthet i användningen (Patentkrav 5).

Uppfinningen förklaras nedan närmare med hjälp av figurerna 1 till 6. Figurerna 1 och 2 visar ett planmunstycke, figu-

rerna 3 och 4 ett dammunstycke och slutligen figurerna 5 och 6 ett kombinationsmunstycke.

I figurerna 1 och 2 visas i perspektiv resp genomskärning hur en munstyckskropp (3) försetts med ett hål i ena änden med lämplig passning för anslutning till rörskaftet (2). Munstyckets inre består av ett rör (5) på vilket golvmunstyckets förlängningsrör ansluts när så önskas. Munstyckskroppens (3) från dammsugaren bortvända ände (4) uppvisar en mot centrumaxeln sned avskärning. Den snett avskurna änden bildar en ca 45-gradig vinkel mot centrumaxeln. Det inre rörets längd är så vald att rörets mynning hamnar ungefär vid den snett avslutade ändens damsugarnära kant. Förlängningsrören kan med lätthet träs på det inre röret genom att förlängningsrörets ände tryckes mot munstyckskroppens yttersta insida och föres in i munstyckskroppen. Med rätt dimension på munstyckskroppens inre rör och dess yttre kommer förlängningsröret (6) att träffa rätt och glida in på det inre röret (5). Den ca 45-gradiga vinkeln hos munstyckskroppen (3) väljes så att den snett avskurna ändens yta blir ungefär horisontell då handen håller i rörskaftet (2) på samma sätt som vid sugning av golv med golvmunstycket.

Den snett avskurna ändens (4) kant utformas så att den kan användas som ett effektivt och skonsamt planmunstycke för t.ex. sugning av textilier. Kanten kan t.ex. förses med tandliknande urtag för att luft skall sugas in genom urtagen och dra med sig damm från den yta som suges. Kanten kan också förses med kardborreliknande vidhäftande material.

I figur 3 och 4 visas i perspektiv resp genomskärning hur en borstkrans (1) monterats på en munstyckskropps (3) snett avskurna ände (4) så att även borstkransens ände bildar en ca 45-gradig lutning mot munstyckskroppens axel. Härvid bildas ett dammunstycke med bekväm anliggningsvinkel och med bibehållen möjlighet att med hjälp av munstyckskroppens snett

avskurna ände (4) lätt styra in förlängningsröret (6) för koppling till det inre röret (5). Borstens strån kan vara olika långa runt om periferin för att ytterligare modifiera anliggningsvinkeln. Stråna kan även peka något ut från munstyckskroppens centrumlinje för att öka den sugande ytan och för att förenkla införandet av förlängningsröret (6).

Slutligen visas i figur 5 och 6 i perspektiv resp genomskärning ett kombinationsmunstycke där borstkransen (1) i figurerna (3) och (4) ersätts av en borstkrans (8) som är fastgjord vid ett rör (7) som kan förflyttas på munstyckskroppen (3) i dess längdriktning. Röret (7) har två ändlägen i vilka den hålles kvar med snäppanordningar. Snäppanordningarna visas ej i figurerna. Ändlägena är så valda att borstkransen i ena läget, figur 5a och 6a, är aktivt när förlängningsröret dras ur och i det andra läget så långt tillbakadraget att munstyckskroppens (3) snett avskurna ände (4) frilagts och kan användas som planmunstycke, figur 5b och 6b. Förlängningsröret (6) kan med borstkransen (8) i båda sina ändlägen med lätthet kopplas till det inre röret(5). De båda snäpplägena kan åstadkommas på ett flertal sätt så att snäppkraften håller röret (7) med borstkransen (8) på plats vid sugning med borstkransen (8) i aktivt läge eller i tillbakadraget läge vid sugning med planmunstycket (4), men ändå lätt kan övervinnas vid flyttning av röret (7) med borstkransen (8) mellan sina båda ändlägen. I ändlägena sammanfaller en av rörets (7) ändar ungefär med munstyckskroppens (3) motsvarande ände. Röret (7) styres i längdriktningen på munstyckskroppen så att det förhindras rotera runt denna. Denna styrning visas ej i fig 5 och 6 men kan utformas på känt sätt t.ex. med splines eller oval form på munstyckskroppens (3) utsida resp rörets (7) insida.

Självfallet kan också speciellt utformade munstycken för ytterligare funktioner kopplas till det inre röret (5) i stället för förlängningsröret (6) med alla här nämnda munstycken på plats.

Patentkrav

1. Dammsugarmunstycke för sugning av hårda och/eller mjuka ytor, vars från dammsugaren vända ände är utformad som ett planmunstycke eller dammunstycke, och vars mot dammsugaren vända ände utformats för anslutning till dammsugarens rörskaft (2), k ä n n e t e c k n a t därav att den från dammsugaren vända änden utformats med ett inre rör (5) så att ett fritt utrymme uppstår runtom det inre röret (5) för påföring av ett golvmunstyckes förlängningsrör (6) på det inre röret.

2. Dammsugarmunstycke enligt patentkrav 1 k ä n n e t e c k n a t därav att det inre röret ligger helt i munstyckskroppen (3).

3. Dammsugarmunstycke enligt patentkrav 1 eller 2 k ä n n e t e c k n a t därav att munstyckskroppens från dammsugaren vända ände uppvisar en mot centrumaxeln sned avskärning (4).

4. Dammsugarmunstycke enligt patentkrav 3 k ä n n e t e c k n a t därav att på munstyckskroppens (3) snett avskurna ände (4) en borstkrans (1) anbringats runt ändens ovala periferi med borsten ungefär parallell med centrumaxeln på sådant sätt att borstkransen (1) bildar ett dammunstycke med en sugyta som är ungefär parallell med den sneda avskärningen.

5. Dammsugarmunstycke enligt patentkrav 3 k ä n n e t e c k n a t därav att utanpå munstyckskroppen (3) ett rör (7) anbringats som med yttre handkraft kan förskjutas mellan två snäpplägen och att även röret (7) uppvisar en lika snett avskuren ände och vänd åt samma håll som munstyckskroppens snett avskurna ände (4) och att på det yttre rörets (7) snett avskurna ände en borstkrans (8) fastgjorts runt ändens ovala periferi med borsten ungefär parallell

med centrumaxeln på sådant sätt att borstkransen bildar ett dammunstycke med en sugyta som är ungefär parallell med den sneda avskärningen.

6. Dammsugarmunstycke enligt något av kraven 3 till 5 k ä n n e t e c k n a t därav att munstyckskroppens (3) snett avskurna ände (4) bildar en ca 45-gradig vinkel mot munstyckskroppens (3) centrumaxel.

7. Dammsugarmunstycke enligt något av kraven 3 till 6 k ä n n e t e c k n a t därav att munstyckskroppens (3) snett avskurna ändes (4) kanter utformats som ett planmunstycke för sugning av företrädesvis textilier.

Sammandrag

Uppfinningen avser ett dammsugarmunstycke avsett för sugning av hårda och/eller mjuka ytor. Vid arbete med dammsugare önskar man ofta växla efterhand som man förflyttar sig genom rummet mellan sugning av golv med golvmunstycket och sugning av möbler, lister, textilier m.m. med dammunstycket resp planmunstycket. Växling mellan de olika munstyckena försvåras av att golvmunstycket med sina förlängningsrör måste släppas för att få en fri hand när dammunstycket eller planmunstycket tas av resp. sätts på. Även växling mellan dammunstycket och planmunstycket kräver en fri hand. Uppfinningen löser detta problem genom att damm/planmunstycket är så utformat att golvmunstyckets förlängningsrör (6) med lätthet kan stickas in i damm/planmunstyckets munstyckskropp (3) som således kan sitta kvar på rörskaftet. Utan golvmunstycket med sina förlängningsrör erhålles ett damm/planmunstycke med bekväm anliggningsvinkel.

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VACUUM CLEANER TOOL FOR SUCTION OF HARD AND/OR SOFT SURFACES

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VACUUM CLEANER TOOL FOR SUCTION OF HARD AND/OR SOFT SURFACES

Field of the Invention

The present invention relates to a vacuum cleaner nozzle for the vacuum cleaning of hard and/or soft surfaces, whereof one end is designed to be connected to the vacuum cleaner hose handle and the other end is equipped with an inner tube surrounded by a clear space permitting the wand for the floor nozzle to be fitted upon said inner tube.

Background of the Invention

A nozzle which can be left in place on the vacuum cleaner hose handle even when the wands of the floor nozzle are connected to the vacuum cleaner is known. Switching between the use of a dust brush nozzle and of a floor nozzle is facilitated thereby. A drawback of the above-mentioned solution is that the dust brush nozzle, or the mounting thereof on the hose handle, is dependent on the length of the hose handle in order for the mouth of the hose handle to be correctly positioned in relation to the bevelled mouth opening of the nozzle body. This is a problem because the length of the hose handle can vary between makes.

Summary of the Invention

The purpose of the present invention is to eliminate the above-mentioned drawback by integrating a tube into the dust brush nozzle so that the hose handle can be inserted into one end of the dust brush nozzle and the wands can be fitted to its other end. This provides a general-purpose dust brush nozzle or flat nozzle with a convenient contact angle (claim 6), which does not need to be moved from its active position when the floor nozzle and wands are in use (claim 1). The user can easily switch between floor cleaning and the use of the dust brush/flat nozzle without the need to put down the floor nozzle and wands in order to free one hand. The invention also permits the dust brush and the flat nozzle to be combined as a combination nozzle with retained ease of use (claim 5).

Brief Description of the Drawings

The invention is explained more particularly below with the aid of Figures 1 to 6. Figures 1 and 2 show a flat nozzle, figures 3 and 4 a dust brush nozzle, and Figures 5 and 6 a combination nozzle.

Detailed Description of the Preferred Embodiments

Figures 1 and 2 show in perspective and in section, respectively, a nozzle body (3) provided at one end with a hole of a suitable fit for connection to the hose handle (2). The interior of the nozzle consists of a tube (5) onto which the wand of the floor nozzle is fitted when desired. The nozzle body (3) exhibits at its far end (4) from the vacuum cleaner a mouth opening cut at a bevelled angle in relation to the central axis. The bevelled mouth opening forms angle of approximately 45 degrees with said central axis. The length of the inner tube is chosen so that the mouth of the tube comes to be situated approximately at that edge of the bevelled mouth opening which is nearer to the vacuum cleaner. Wands are readily fitted onto the inner tube by pressing the end of the wand against the far end of the inner surface of the nozzle body and inserting it into the nozzle body. If the inner tube of the nozzle body and its outer shell are correctly sized, the wand (6) will slide in accurately onto the inner tube (5). The bevel angle of approximately 45 degrees of the nozzle body (3) is chosen so that the surface of the bevelled mouth opening will be approximately horizontal when the hose handle (2) is held in the hand in the same way as when vacuuming the floor with the floor nozzle.

The edge of the bevelled mouth opening (4) is designed so that it can be used as an effective and gentle flat nozzle for e.g. the vacuuming of textiles. The edge may be provided with e.g. tooth-like notches so that air will be sucked in through the notches, entraining dust from the surface being cleaned. The edge may also be lined with a Velcro-like adhesive material.

Figures 3 and 4 show in perspective and in section, respectively, a brush head (1) mounted on the bevelled end (4) of a nozzle body (3) so that the end of the brush head itself forms an angle of approximately 45 degrees with the axis of the nozzle

body. Thus a dust brush nozzle is formed having a convenient contact angle and with the retained ability, with the aid of the bevelled end (4) of the nozzle body, to easily guide the wand (6) into connection with the inner tube (5). The bristles of the brush may be of differing lengths about the periphery in order to further modify the contact angle. The bristles may moreover point somewhat outwards from the centreline of the nozzle body in order to increase the suction surface and facilitate the insertion of the wand (6).

Figures 5 and 6, finally, show in perspective and in section respectively a combination nozzle wherein the brush head (1) of Figures 3 and 4 is replaced with a brush head (8) fixed to a tube (7) which can be slid lengthways along the nozzle body (3). The tube (7) has two end positions in which it is retained with snap fastenings. The snap fastenings are not shown in the figures. The end positions are chosen so that in one position, Figures 5a and 6a, the brush head is active when the wand is removed and in the other position the brush head is retracted far enough so that the bevelled mouth opening (4) of the nozzle body (3) is exposed for use as a flat nozzle, Figures 5b and 6b. The wand (6) can be easily attached to the inner tube (5) with the brush head (8) in either of its end positions. The two snap-lock positions can be achieved in a number of ways such that the snap-locking force is sufficient to retain the tube (7), with the brush head (8) in place, during vacuuming with the brush head (8) in active position, or in retracted position during vacuuming with the flat nozzle (4), but is still easily overcome in order to slide the tube (7) and brush head (8) between its two end positions. In the end positions, one end of the tube (7) coincides approximately with the corresponding end of the nozzle body (3). The tube (7) is so constrained in its motion along the nozzle body that it is prevented from rotating about the latter. This constraint is not shown in Figures 5 and 6 but may be achieved in a known manner e.g. by means of splines or by endowing the outside of the nozzle body (3) and the inside of the tube (7) with an oval cross-section.

Obviously, specially designed nozzles for additional functions may be attached to the inner tube (5) in place of the wand (6), with all the above-mentioned nozzles in place.

What is claimed is:

1. A vacuum cleaner nozzle for the vacuum cleaning of hard and/or soft surfaces, comprising a nozzle body having an end furthest from the vacuum cleaner, said end being in the form of one of a flat nozzle and dust brush nozzle, said nozzle further including an end nearer to the vacuum cleaner formed for connection to a hose handle of a vacuum cleaner, and wherein the end further from the vacuum cleaner is equipped with an inner tube surrounded by a clear space for the fitting of a wand of a floor nozzle onto said inner tube.

2. A vacuum cleaner nozzle according to Claim 1, wherein the inner tube is entirely contained inside the nozzle body.

3. A vacuum cleaner nozzle according to Claim 1, wherein the end of the nozzle body further from the vacuum cleaner defines a mouth opening, the mouth opening being cut at a bevelled angle in relation to a central axis defined by the nozzle body.

4. A vacuum cleaner nozzle according to Claim 3, further comprising a brush head mounted about a periphery of the bevelled mouth opening of the nozzle body the brush head including a brush approximately parallel to the central axis so that the brush head forms a dust brush nozzle having a suction surface that is approximately parallel to the bevelled mouth opening.

5. A vacuum cleaner nozzle according to Claim 3, further comprising a tube mounted around about an exterior of the nozzle body, the tube being manually slidable between two snap-look positions and said tube also defining a bevelled end of about the same angle and oriented in about the same direction as the bevelled mouth opening of the nozzle body and there is fixed about the periphery of the bevelled end of the outer tube a brush head having a brush approximately parallel to the central axis in such a manner that the brush head forms a dust brush nozzle having a suction surface which is approximately parallel to the bevelled end.

6. A vacuum cleaner nozzle according to Claim 3, wherein the bevelled mouth opening of the nozzle body forms an angle of approximately 45 degrees relative to the central axis of the nozzle body.

7. A vacuum cleaner nozzle according to Claim 3, wherein edges defined by the bevelled mouth opening of the nozzle body are formed as an approximately flat nozzle for the vacuum cleaning of fabrics in particular.

Abstract

The invention relates to a vacuum cleaner nozzle intended for the vacuum cleaning of hard and/or soft surfaces. When using a vacuum cleaner, in the course of working through the room one often wishes to switch between vacuuming the floor with the floor nozzle and vacuuming furniture, skirting boards, fabrics, etc. with the dust brush or the flat nozzle as appropriate. Switching between the different nozzles is impeded by the fact that one must let go of the floor nozzle and its wands in order to free a hand to connect or disconnect the dust brush or the flat nozzle. Switching between the dust brush and the flat nozzle also requires a free hand. The invention solves this problem in that the dust brush/flat nozzle is so designed that the wands of the floor nozzle are easily inserted into the nozzle body of the dust brush/flat nozzle, which can thus be left in place on the hose handle. Without the floor nozzle and its wands, a dust brush/flat nozzle with a convenient contact angle is obtained.